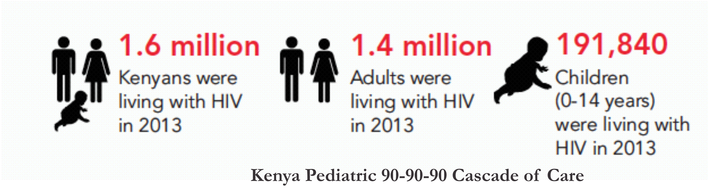
Can children with HIV reach the 90-90-90 goals?: Viral suppression in a pediatric patient population in western Kenya

Patterson[1], B., Kadima[2], J., Mburu[2] M., Biat[3], C., Bukusi[2], EA., Cohen[3], CR., Oyaro[2], P., Abuogi[4], L.

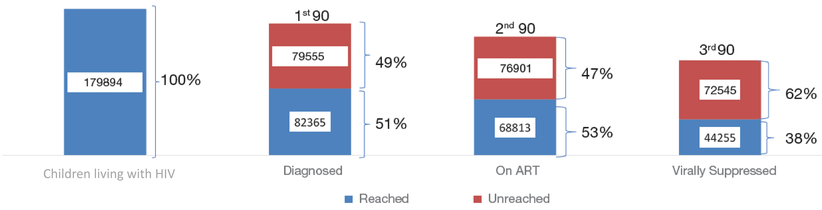
1. University of Colorado School of Medicine, Aurora, Colorado, USA
2. Family AIDS Care and Education Services (FACES), Research Care and Training Program (RCTP), Centre for Microbiology Research (CMR), Kenya Medical Research Institute (KEMRI), Kisumu, Kenya
3. University of California San Francisco, San Francisco, California, USA
4. Department of Pediatrics, University of Colorado Denver, Aurora, Colorado, USA

Background

- Routine viral load monitoring is critical in measuring treatment efficacy and achieving the UNAIDS 90-90-90 goals
- There are an estimated 190,000 HIV-infected children in Kenya with 53% on ART
- Routine viral load monitoring was rolled out in Kenya in 2013
- We investigated potential risk factors associated with failure to reach virologic suppression in a pediatric patient population in



Kenya Pediatric 90-90-90 Cascade of Care



Methods

- Nested case-control study
- Cohort of HIV-infected children < 15 years old on ART who underwent routine VL testing June 2014—May 2015
- Random sample of 299 children: 1 case (VL ⩾1000 cp/ml) per 2 controls (VL <1000 cp/ml)
- 5 Family AIDS Care and Education Services (FACES)-supported government clinics in western Kenya
- Retrospective review of clinical records
- Logistic regression analysis was used to analyze data

Results

- 63% (748/1190) of all children undergoing routine VL testing were virologically suppressed
- Majority (72%) of children in the study were between 3 and 10 years old at time of VL testing
- WHO stage, CD4 and time since ART initiation were not associated with failure to suppress

Measure	VL =1000 cp/ml (case) n (%) or median (IQR)	VL <1000 cp/ml (control) n (%) or median (IQR)	p-value		OR (95% CI)	p-value	aOR (95% CI)	p-value
Gender			0.003					
Female	33(24.1)	104(75.9)			Ref		Ref	
Male	65(40.1)	97(59.9)			2.1 (1.3-3.5)	0.004	2.1 (1.2-3.6)	0.007
Number of Regimen Changes			0.008					
None	60(28.2)	153(71.8)			Ref		Ref	
At Least Once	38(44.2)	48(55.8)			2.0(1.2-3.4)	0.008	2.0(1.0-3.7)	0.041
Current ART Regimen			0.005					
NVP Based	50(29.1)	122(70.9)			Ref		Ref	
LVP/r Based	32(49.2)	33(50.8)			2.4(1.3-4.3)	0.004	2.0(1.0-3.9)	0.062
Other	16(25.8)	46(74.2)			0.8(0.4-1.6)	0.625	0.9(0.4-2.0)	0.819
History of TB			0.147					
No	12(24.0)	38(76.0)			Ref		Ref	
Yes	86(34.5)	163(65.5)			0.6(0.3-1.2)	0.150	0.4(0.2-0.9)	0.035

- In multivariable analysis, **unsuppressed children were more likely to be male (adjusted Odds Ratio (aOR)=2.1, 95% Confidence Interval (CI): 1.2-3.6) and have had ⩾1 regimen changes (aOR=2.0, 95% CI: 1.0-3.7)**
- Children with a history of tuberculosis (TB) were more likely to suppress than those without TB (aOR=0.4, 95% CI: 0.2-0.9)

Conclusion

- Approximately 1 in 3 children undergoing routine VL testing failed to suppress.
- Traditional risk factors for pediatric treatment failure such as CD4 and clinical stage were not shown to have a significant effect on VL
- Children on second line show higher rates of treatment failure and may require separate focus
- Routine VL testing is critical to evaluate treatment efficacy and diagnose failure

Acknowledgments

We would like to thank the Ministry of Health, Kenya; PEPFAR Kenya – U.S. Centers for Disease Control and Prevention; Children's Investment Fund Foundation – Accelerating Children's HIV/AIDS Treatment Initiative; Research Care and Training Program-Family Aids Care and Education Services (RCTP- FACES), our clients and their families.

FACES is a collaborative KEMRI and UCSF program funded through a cooperative agreement with the U.S. Centers for Disease Control and Prevention (CDC) and U.S. President's Emergency Funding for AIDS Relief (PEPFAR)

This publication was made possible by support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through cooperative agreement U2GPS001913-05 from the U.S. Centers for Disease Control and Prevention (CDC), Division of Global HIV/TB (DGHT).

CONTACTS: Julie Kadima; jkadima@kemri-uscf.org

DISCLAIMER: The findings and conclusions in this poster are those of the authors and do not necessarily represent the official position of the U.S Centers for Disease Control and Prevention or the Government of Kenya.

Presented at the AIDS 2016 CONFERENCE DURBAN INTERNATIONAL CONFERENCE CENTRE 18th - 22nd July 2016

Abstract No. **TUPEB112**